



**IN THE MATTER OF**

**TERASEN GAS INC.  
TERASEN GAS (VANCOUVER ISLAND) INC.  
TERASEN GAS (WHISTLER) INC.**

**AND**

**RETURN ON EQUITY AND CAPITAL STRUCTURE**

**DECISION**

**December 16, 2009**

**BEFORE:**

**Anthony J. Pullman, Commissioner/Panel Chair  
D.A. Cote, Commissioner  
M.R. Harle, Commissioner**

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### COMMISSION ORDER G-158-09

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## EXECUTIVE SUMMARY

In this Decision the Commission considers an application by Terasen Gas Inc. ("TGI"), Terasen Gas (Vancouver Island) Inc. ("TGVI") and Terasen Gas (Whistler) Inc. ("TGW") (collectively, "Terasen") regarding Return on Equity and Capital Structure.

TGI requested a change in the common equity component of its capital structure from 35.01 percent to 40 percent and that the increased common equity component be included in the setting of its rates effective January 1, 2010.

The Commission considered, among other matters, its jurisdiction, the fair return standard, evidence on TGI's business risks, and credit ratings and metrics and concluded that TGI's business risk had increased since 2005 and that the appropriate equity ratio for TGI was 40 percent effective January 1, 2010.

TGI also requested an increased in its return on equity ("ROE") from the existing 8.47 percent to 11 percent for rate setting purposes, and that the new ROE for TGI be used in establishing the ROE for TGVI and TGW for rate setting at a premium of 70 basis points and 50 basis points respectively over TGI's ROE, and that the revised ROE for TGI, TGVI and TGW be effective July 1, 2009.

The Commission considered the various approaches used to determine ROE and the expert evidence called on behalf of Terasen and of the Intervenor on ROE. It concluded that primary weight should be accorded to the Discounted Cash Flow approach, lesser weight to the Equity Risk Premium approach (including the Capital Asset Pricing Model) and minimal weight to the Comparable Earnings approach. The Commission concluded that the appropriate ROE for TGI is 9.50 percent. Noting that the Intervenor did not oppose the request that the ROE be effective July 1, 2009 the Commission granted that request.

market index yields a utility risk premium of 1.5 percent to 1.8 percent. Adding this utility risk premium to the May 2009 forecast yield on long Canada bonds of 3.69 percent produces a cost of equity in the range 5.19 percent to 5.49 percent. Since this result is “absurdly low” in comparison to current yields on utility bonds, Terasen concludes either that: (1) betas as traditionally measured do not correctly measure the risk of utility stocks; or (2) the CAPM does not apply to the Canadian marketplace. (Exhibit B-3, BCUC 14.5.1)

Ms. McShane calculates the “raw” beta for PNG Ltd. (“PNG”) to be 0.26 for 2008 (Exhibit B-1, Tab 3, Schedule 11). Dr. Booth testified that PNG was “the riskiest Canadian utility” (T5:603).

JIESC addresses adjustment to beta, noting that Dr. Booth concluded that it is unreasonable to just use the statistical estimate without recognising the underlying events that caused it, and then to make the appropriate adjustments. JIESC submits that Ms. McShane confirmed that no regulatory agency in Canada has accepted adjusted betas and that in the TQM Decision the NEB specifically rejected adjusted betas. (JIESC Argument, p. 37)

Terasen submits that an ROE based on CAPM fails to meet the Commission’s obligation to provide Terasen with the opportunity to earn a fair return on its investment in utility assets in that the CAPM methodology does not, and is not intended to, relate to the business risk associated with an investment in utility assets. Rather, it relates to how the investment in one asset (usually a security) affects the overall riskiness of a basket (or portfolio) of investments. CAPM assumes that an investor has a diversified portfolio of investments and that risk is measured only by reference to the impact that a specific investment has on the overall diversified portfolio; CAPM is not attempting to measure the business risk of a utility or other company. (Terasen Argument, para 146)

The May 2003 article from *Public Utilities Fortnightly* cited above states that:

“CAPM, by comparison, is abstruse as a piece of theory. Further, because most of the components of the calculation are common to all companies (i.e., the risk-free rate and the market risk premium), the CAPM cannot make use of the law of large

numbers. That is to say, the problems associated with which risk-free rate to pick, or which market risk premium to adopt, hinder the result, no matter how many companies the calculation are performed upon. Finally, the CAPM has no tie to disinterested company analysts that not only reflect, but also shape, the opinions of investors. It is thus no surprise that the CAPM is vastly less popular among US regulatory commissions as a rate of return method.” (Exhibit B-20)

JIESC points to page 35 of Dr. Booth’s evidence where he states that CAPM is, “overwhelmingly the most important model used by a company in estimating their cost of equity capital,” and cites a 2001 survey of 392 US chief financial officers (“CFOs”) in the Journal of Financial Economics. Dr. Booth points out that 70 percent of the US CFOs use CAPM and a further 30 percent use a multi-beta approach similar to his two factor model to measure their own cost of equity. (JIESC Argument, pp. 33, 34)

#### 4.1.3 Comparable Earnings Approach

Terasen states that the comparable earnings approach calculates the achieved earnings returns of a sample of low-risk competitive unregulated Canadian firms over a business cycle.

The comparable earnings test is the only test that explicitly recognizes that, in the North American regulatory framework, the return is applied to an original cost (book value) rate base. The concept that regulation is a surrogate for competition means that the combination of an original cost rate base and a fair return should result in a value to investors commensurate with that of competitive ventures of similar risk.

JIESC cites six basic reasons why Dr. Booth does not use a comparable earned rate of return or comparable earnings approach:

- it is an average not a marginal rate of return;
- it is an accounting rate of return not an economic rate of return;
- it may include the impact of market power;
- it is based on non-inflation adjusted numbers;

- it is earned on historic accounting book equity that does not reflect what can be earned on investments today; and
- it varies with the firms selected in the “comparable earnings” sample.

In addition, the JIESC submits that no regulatory board or commission in Canada has given support to the comparable earnings approach in recent years and that the Alberta Energy and Utilities Board (“AEUB”) very explicitly rejected its use in its 2004 Generic Cost of Capital Decision (2004-052). (JIESC Argument, pp. 40-41)

At the Oral Phase of Argument, JIESC noted that the AUC had confirmed the AEUB’s 2004 finding about CE at paragraph 281 of AUC Decision 2009-216. (T6:774)

Terasen points out that in his evidence, Dr. Booth, as he had in 2005, agreed in that some of his problems with the CE test also appear in the process of setting rates under regulation, notably that both use an accounting rate of return; it is an average, not a marginal, return; it is based on historic book equity; and based on non inflation-adjusted numbers. (Terasen Argument, para 330)

Terasen submits that the *Act* requires the Commission, “to provide a fair return to the utility and what the utility invests in its infrastructure. It’s a fair return to the utility. The *Act* doesn’t say it has to be a fair return to the investors in the utility” and notes that the Alberta board rejected CE, “because they said it didn’t deal with returns available to investors,” which is not the case in BC. (T6:807)

### **Commission Determination**

The Commission Panel has considered the three approaches to determining ROE for a regulated utility and agrees with Terasen that it should take all three into account when establishing an ROE. The Commission Panel agrees that the DCF and ERP are the most common approaches used by regulatory agencies in the US and that CAPM has been widely used in Canada in the period since 1994. The Commission Panel has seen no evidence that suggests: i) it should ignore the fact that

the Commission gave the DCF approach weight in the 2006 ROE Decision, or ii) that would persuade it to depart from the Commission's finding in that decision that the CE methodology had not outlived its usefulness when it commented: "However, the Commission Panel is not convinced that the CE methodology has outlived its usefulness, and believes that it may yet play a role in future ROE hearings."

As for the two most commonly used approaches, the Commission Panel finds that the DCF approach has the more appeal in that it is based on a sound theoretical base, it is forward looking and can be utility specific. The Commission Panel has considered the submission of the JIESC concerning "upward bias" of analysts' estimates and considers that no allegations of upward bias have been levelled against utility analysts and that *Value Line* estimates will be free from any suggestion of upward bias. Accordingly the Commission Panel will not give any weight to suggestions of analyst bias.

The Commission Panel notes that CAPM is based on a theory that can neither be proved nor disproved, relies on a market risk premium which looks back over nine decades and depends on a relative risk factor or beta. The fact that the calculated beta for PNG (considered by Dr. Booth to be the most risky utility in Canada) was 0.26 in 2008 causes the Commission Panel to consider that betas conventionally calculated with reference to the S&P/TSX are distorted and require adjustment.

The Commission Panel will give weight to the CAPM approach, but considers that the relative risk factor should be adjusted in a manner consistent with the practice generally followed by analysts so that it yields a result that accords with common sense and is not patently absurd.

**Accordingly the Commission Panel determines that in determining a suitable ROE for TGI, it will give most weight to the DCF approach, some lesser weight to the ERP and CAPM approaches and a very small amount of weight to the CE approach.**



## 4.2 The Evidence Concerning ROE

This part of Section 4 examines the approaches used by the witnesses to develop their recommended ROEs and the results of the tests they applied.

### 4.2.1 Discounted Cash Flow

The DCF approach was used by both Ms. McShane and Dr. Vander Weide.

Ms. McShane states that there are multiple versions of the DCF model available to estimate the investor's required return. An analyst can employ a constant growth model or a multiple period model to estimate the cost of equity. The constant growth model rests on the assumption that investors expect cash flows to grow at a constant rate throughout the life of the stock. Similarly, a multiple period model rests on the assumption that growth rates will change over the life of the stock.

Ms. McShane states that to estimate the DCF cost of equity she used both models and applied the discounted cash flow test to a sample of low risk US "pure-play" electric and gas distributors that were intended to serve as a proxy for TGI. In applying the DCF test, she states she relied solely on published forecast growth rates that were readily available to investors. In applying the constant growth model, she relied primarily on the consensus (mean) of analysts' earnings growth rate forecasts as the proxy for investors' long-term growth expectations.

To estimate the ROE, Ms. McShane selected a sample of low risk US electric and natural gas distribution utilities, which met the following criteria: were classified by *Value Line* as a gas distributor or an electric utility; had a *Value Line* Safety Rank of "2" or better; had a Standard & Poor's business risk profile of "Excellent" and a debt rating of A- or higher; was not presently being acquired; and had a consistent history of analysts' forecasts.

Thirteen utilities met these criteria of which four (Dominion Resources, Duke Energy, FPL, and Southern Co.) were electric utilities with significant regulated generating assets. (Exhibit B-1, Tab 3, pp. 64-66 and Appendix C)

Ms. McShane agreed that, with the possible exception of Southern Co., such utilities would have to raise considerable amounts of capital replacing their generating assets. (T4:570)

Dr. Vander Weide applied the DCF model to the *Value Line* electric and natural gas utilities which he selected from all the utilities in *Value Line's* electric and natural gas industry groups that had paid dividends during every quarter and did not decrease dividends during any quarter of the past two years, had at least three analysts included in the I/B/E/S mean growth forecast, were not in the process of being acquired, had a *Value Line* Safety Rank of 1, 2, or 3, and had investment grade S&P bond ratings.

Dr. Vander Weide's selection criteria captured ten natural gas LDCs (a number of which were also featured in Moody's report attached to Exhibit B-6, BCUC 111.1) and 24 *Value Line* electric utilities. The latter included some of the largest generating utilities in the US as well as a number of combination gas and electric utilities. (Exhibit B-1, Tab 4, pp. 33, 60, 61)

Ms. McShane states that her constant growth models indicate a cost of equity of approximately 11 percent. Her two-stage model is based on the premise that investors expect the growth rate for the utilities to be equal to the analysts' forecasts (which are five year projections) for the first five years, but, in the longer-term (from year six onward) to migrate to the expected nominal long-run growth rate of 5 percent per annum in the economy, and indicates a cost of equity of approximately 10.4 percent (Exhibit B-1, Tab 3, p. 66 and Schedule 18). Ms. McShane updated her constant growth model in Exhibit B-3, BCUC 65.3 and found the result of 11 percent to be "virtually identical."